Forget jetpacks. Where are our hydrogen-powered cars?

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by Rod Borup

Fuel cells have long been one of the most tantalizing clean-energy solutions. They offer electricity from an abundant energy carrier — hydrogen. Their energy density and scalability allow them to power everything from cell phones to cars, homes to the electric grid itself. They are more than twice as efficient at converting fuel to power than internal combustion engines. They use hydrogen that can be produced by using renewable energy such as solar or wind power to split water — H_2O —into hydrogen and oxygen. And since the only byproducts of fuel cells are water and heat, they do all this without spewing climate-warming carbon dioxide.

Yet for decades commercially viable fuel cells, particularly for cars, have remained just over the horizon. So why aren't we there yet? After all, fuel cells kept the lights on for the astronauts in the Apollo spacecraft nearly 50 years ago.

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